

The Examiner's Position

The Examiner takes the position that Babinec et al. teach a polyaniline-containing composition comprising polyaniline, a dopant, an inorganic compound and water, wherein the dopant is a polymer having an acid group such as phosphoric acid group, sulfonic acid group or carboxyl group.

The Examiner admits that Babinec et al. do not teach the amount of inorganic compound, polyaniline and emulsion polymer. However, the Examiner states that the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render Applicant's claims patentable in the absence of unexpected results. Further, the Examiner states that at the time of the invention, it would have been obvious to a person of ordinary skill in the art to optimize the amount of inorganic compound, polyaniline and emulsion polymer to achieve the electrical conductive composition.

Applicant's Arguments

As discussed above, with regard to claim 10, the Examiner acknowledges the following:

Babinec et al. teach a polyaniline-containing composition comprising polyaniline, a dopant, an inorganic compound and water, wherein the dopant is a polymer having an acid group such as phosphoric acid group, sulfonic acid group or carboxy group.

However, Babinec et al. do not disclose an emulsion polymer, as required by Applicant's independent claim 10. Although Babinec et al. disclose polymers having carbon-, phosphorus-, or sulfur- containing acid groups, the polymers of the reference are not shown to be emulsion polymers. See column 13, lines 10-20 of Babinec et al., as cited by the Examiner. Accordingly, the Examiner has failed to address how the cited reference renders the claimed invention obvious.

The object of the presently claimed invention is to provide a polyaniline-containing composition comprising polyaniline, where the polyaniline is uniformly dispersed in water or a solvent, thus having a superior dispersion stability. (See page 2,

lines 16-18 of Applicant's specification.) A polyaniline generally has extremely low solubility and dispersibility in water or a solvent. (See page 1, line 22 to page 2, line 3 of Applicant's specification.) However, in the presently claimed invention, an emulsion polymer having an acid group is used to disperse the polyaniline uniformly in the composition including water. Without the emulsion polymer, it is difficult to disperse the polyaniline uniformly in the composition including water.

Babinec et al. do not mention an emulsion polymer, nor do they recognize the object of improving dispersion of the polyaniline which has low solubility in water or a solvent. Further, Babinec et al. do not disclose the technical idea of improving the dispersion of the polyaniline to provide a uniform and stable dispersion in the composition comprising water.

Accordingly, the subject matter of claim 10 is not obvious over the teachings of Babinec et al.

With regard to claims 11 and 13, the Examiner acknowledges the following:

Babinec et al. do not teach the amount of inorganic compound, polyaniline and emulsion polymer. It would have been obvious to a person of ordinary skill in the art to optimize the amount of inorganic compound, polyaniline, and emulsion polymer to achieve the electrical conductive composition.

However, in the present invention of claims 11 and 13, the amounts of inorganic compound, polyaniline, and emulsion polymer are defined to improve uniform dispersion of the polyaniline in the composition containing water. Additionally, the amounts of the composition components are defined to improve the conductivity, efficiency, strength and the flexibility of the coated film obtained from the polyaniline-containing composition, as well as the storage stability of the composition. (Please see page 13, lines 2-8; page 14, line 21 to page 15, line 1; and page 16, line 24 to page 17, line 4 of Applicant's specification.)

Specifically, page 13, lines 2-8 of Applicant's specification states that a content of less than 0.01% of polyaniline by mass may lead to deterioration in the conductivity of

the coated film obtained from the polyaniline-containing composition, while an excessively high concentration of more than 10% by mass may lead to poor dispersion of the polyaniline and deterioration in the strength and the flexibility of the coated film obtained from the polyaniline-containing composition.

Additionally, page 14, line 21 to page 15, line 1 of Applicant's specification states that a content of less than 10% by mass of the emulsion polymer may lead to decrease in the efficiency of forming a coated film obtained from the polyaniline-containing composition, and thus a uniformly coated film cannot be produced, while the content of more than 60% by mass may lead to increase in the viscosity of the polyaniline-containing composition.

Further, page 16, line 24 to page 17, line 4 of Applicant's specification states that the blended amount of less than 0.01 parts by mass of the inorganic compound may result in decrease in the effectiveness of suppressing aggregation of a polyaniline and almost ineffectiveness in improving storage stability, while the blended amount of more than 5 parts by mass may result in decrease in the strength and the flexibility of the coated film obtained from the polyaniline-containing composition.

Thus, the particular amounts recited in Applicant's claims 11 and 13 are important in achieving these advantageous effects. However, Babinec et al. fail to even mention the above described factors, except the conductivity. Thus, it is untenable to assert that one skilled in the art would create Applicant's claimed composition, with the particularly recited amounts of ingredients, with no guidance provided by the cited reference. Therefore, the present invention of claims 11 and 13 could not be achieved from Babinec et al.

For these reasons, the subject matter of claims 10, 11 and 13 is clearly patentable over Babinec et al.

Note to the Examiner

Page 3 of the Office Action states that a new ground of rejection is made in view of Sugimoto et al. (US 5,552,216). However, the Office Action does not set forth a

rejection based on this reference. Accordingly, this reference is not discussed in this response.

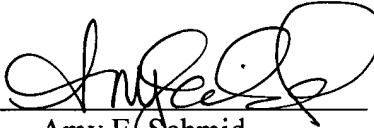
Conclusion

Therefore, in view of the foregoing remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Hayahide YAMASAKI

By: 
Amy E. Schmid
Registration No. 55,965
Attorney for Applicant

AES/nrj
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
April 2, 2008